

Claim Amendments

1. (canceled)
2. (canceled)
3. (canceled)
4. (canceled)
5. (currently amended) A transmission target X-ray tube comprising:
a cathode arranged to provide a source of electrons;
an anode held at a positive potential with respect to the cathode to accelerate electrons
from the cathode such that they will impact on the anode thereby to produce X-rays, wherein the
anode is a thin film anode; and
a retardation electrode held at a negative potential with respect to the anode to produce an
electric field between the anode and the retardation electrode which ~~can~~ slows down electrons
which have passed through the anode thereby reducing the amount of heat they ~~can~~ generate in
the tube, wherein the retardation electrode is located on the opposite side of the anode to the
cathode, wherein the retardation electrode forms part of an electrical circuit and its potential is
substantially constant and A transmission target X-ray tube according to claim 4 wherein the
retardation electrode is electrically connected to the anode via a resistor, wherein current flowing
through the resistor determines the potential of the retardation electrode with respect to the
anode.
6. (currently amended) A transmission target X-ray tube according to claim 5+ further
comprising: a housing enclosing the anode and the cathode, wherein at least a part of the housing
forms the retardation electrode.
7. (currently amended) A transmission target X-ray tube according to claim 5+ further
comprising a housing, wherein the retardation electrode is located between the anode and the
housing.
8. (currently amended) A transmission target X-ray tube according to claim 5+ wherein the
anode is supported on a backing layer of lower atomic number material than the anode.
9. (currently amended) A transmission target X-ray tube comprising:
a cathode arranged to provide a source of electrons;
an anode held at a positive potential with respect to the cathode to accelerate electrons
from the cathode such that they will impact on the anode thereby to produce X-rays, wherein the
anode is a thin film anode; and
a retardation electrode held at a negative potential with respect to the anode to produce an
electric field between the anode and the retardation electrode which ~~can~~ slows down electrons

which have passed through the anode thereby reducing the amount of heat they can generate in the tube, wherein the retardation electrode is located on the opposite side of the anode to the cathode. A transmission target X-ray tube according to claim 1 wherein the anode has a thickness of 5 microns or less.

10. (currently amended) A transmission target X-ray tube according to claim 5 wherein the tube further defines a window through which X-rays are emitted and wherein the retardation electrode extends between the anode and the window so that X-rays passing out through the window will pass through the retardation electrode.

11. (currently amended) A transmission target X-ray tube according to claim 10 wherein the anode produces X-rays having a range of energies including a peak energy, and the retardation electrode has an X-ray attenuation which varies with X-ray energy and has a minimum value around a minimum attenuation energy, and wherein the retardation electrode material is selected such that the minimum attenuation energy coincides with the peak energy.

12. (canceled)

13. (new) A transmission target X-ray tube according to claim 5 wherein the retardation electrode is held at a positive potential with respect to the cathode.

14. (new) A transmission target X-ray tube according to claim 5 wherein the retardation electrode is made of an electrically conducting material.

15. (new) A transmission target X-ray tube according to claim 9 wherein the retardation electrode is held at a positive potential with respect to the cathode.

16. (new) A transmission target X-ray tube according to claim 9 wherein the retardation electrode is made of an electrically conducting material.

17. (new) A transmission target X-ray tube according to claim 9 further comprising: a housing enclosing the anode and the cathode, wherein at least a part of the housing forms the retardation electrode.

18. (new) A transmission target X-ray tube according to claim 9 further comprising a housing, wherein the retardation electrode is located between the anode and the housing.

19. (new) A transmission target X-ray tube according to claim 9 wherein the anode is supported on a backing layer of lower atomic number material than the anode.

20. (new) A transmission target X-ray tube according to claim 9 wherein the tube further defines a window through which X-rays are emitted and wherein the retardation electrode extends between the anode and the window so that X-rays passing out through the window will pass through the retardation electrode.

21. (new) A transmission target X-ray tube according to claim 20 wherein the anode produces X-rays having a range of energies including a peak energy, and the retardation electrode has an X-ray attenuation which varies with X-ray energy and has a minimum value around a minimum attenuation energy, and wherein the retardation electrode material is selected such that the minimum attenuation energy coincides with the peak energy.